

HANDBOOK AND OPERATING INSTRUCTIONS

for

Type 204 Tape Search Unit

RAPCO ELECTRONICS LTD.,
Joule Road,
Basingstoke,
Hants.
UK
RG21 2XF

Tel: Basingstoke (0256) 25454

GENERAL DESCRIPTION

The RAPCO 204 Tape Search Unit has been designed to operate in conjunction with the RAPCO 104 Time Code Reader. However, it will also interface with other units that provide parallel BCD outputs and can also supply +5V.

The unit gives indications as to the status of the incoming code in relation to the value set up on the thumbwheel switches.

A slide switch on the rear panel allows the searching resolution to be adjusted to the user's requirements.

In addition to the front panel indications, an internal audible alarm will also sound when the incoming value is equal to that of the thumbwheel setting if required.

SPECIFICATION

INPUT

Format	:	Standard 1, 2, 4, 8 Binary Coded Decimal. 20 lines representing Hours, Minutes and Seconds. Extra line for SIGNAL LOW to inhibit unit.
Impedance	:	56K Ω to 150K Ω
Input Range	:	0V to +10V
Maximum I/P Voltage	:	-0.5V to +15V
Connector	:	25-way Cannon D Range socket

OUTPUT

Format	:	Pulse to 0V
Duration	:	5 - 10 μ S
Current Sink	:	100mA
Max. Applied Voltage	:	40V, reverse voltage protected.
Connector	:	5 pin 180° DIN Socket

FRONT PANEL CONTROLS

ON	:	Enables the front panel indicators and outputs.
ALARM ON	:	This switch controls the audible alarm.
THUMBWHEEL SWITCHES	:	These are used to set the required search time in hours, minutes and seconds.

REAR PANEL CONTROLS

RESOLUTION : Slide switch allows selection of
search resolution to SECONDS,
TENS SECONDS or MINUTES.

FRONT PANEL INDICATORS

ON TIME : Will illuminate when the incoming
information is equal to the thumbwheel
switch setting.

NOTE: The resolution selection will
influence the length of time
this indicator is on.

BEHIND : This indicator will illuminate when
the incoming time is behind the thumb-
wheel setting.

AHEAD : This indicator will illuminate when
the incoming time is ahead of the
thumbwheel setting.

POWER

Voltage : +5V \pm 10%

Current : 50mA max.

Source : Derived from the unit that is also
supplying the BCD information.

MECHANICAL

The unit is 8-1/8" wide x 1-3/4" high x 9-1/2" deep.

Three configurations are available:

1. Two units may be mounted side by side in a standard 19" rack.
There is sufficient clearance for two units to be mounted in a tray which can itself be mounted on runners and still occupy only 1U (1-3/4") height.
2. Free standing. The two sides may be supplied with two tapped OBA holes enabling the instrument to be mounted by brackets to existing equipment racking.
3. A table top stand is available. The stand incorporates preset friction pivots which enable the instrument to be adjusted for viewing angle from 30° below to 75° above the horizontal.

TEMPERATURE RANGE

Operating	:	0°C to +55°C
Storage	:	-15°C to +15°C

OPERATING INSTRUCTIONS

Ensure that the lead connecting the 204 to the instrument supplying the BCD information is mating correctly.

Switch both units ON. One of the indicating LEDs on the 204 should be ON.

Switch the 204 OFF during the setting of the thumbwheel switches if a tape recorder is connected to the 204 output and is in the process of recording. This will prevent the recorder from being stopped prematurely.

Set the desired stop time on the thumbwheel switches. Note that this unit is a simple comparator and does not take into account the tape transport stop time.

Switch the 204 ON.

The 204 will now present status information to the user. If the unit is being used to control a tape deck, it should be noted that during fast playback speeds, the ON TIME may be too short for the audible alarm to sound and the tape transport run down may also go outside the ON TIME again preventing the audible alarm from sounding.

If a search is not required, the 204 should be switched OFF or, alternatively, the DIN plug may be removed so that the tape recorder is not stopped.

The SIGNAL LOW input will prevent the output pulse from being generated when at a logic 0.

CIRCUIT DESCRIPTION

The 20 line BCD information is applied to ICs N.1 - N.6 via protection and pull down resistor networks RN1 - RN.6. N.1 to N.6 forms a 20 bit magnitude comparator which compares the BCD information supplied to the unit with the BCD value obtained from the front panel thumbwheel switches.

N.8 and N.9 are used by the rear panel resolution slide switch to either enable the cascading comparator information or inhibit this data. In the SECONDS mode, the information from the least significant comparator N.6 will be passed to the cascading inputs of N.5. However, when 10's second resolution is selected, N.9 forces pin 6 N.5 to a logic 1 and pin 5 to a logic 0 thus overriding the result of the seconds comparison. The function of N.8 is identical to N.9 but is used to gate the 10's seconds cascading information.

The GREATER THAN, LESS THAN and EQUAL TO outputs, pins 13, 12 and 3 of N.1 respectively are buffered by N.10 and used to drive the front panel indicators. In addition, the EQUAL TO information is used to drive the alarm transistor T.1 via the Alarm Switch and to trigger the output pulse monostable N.7. The pulse duration is determined by R.3 and C.8. N.7 will be prevented from triggering when the 204 is switched off or when the INPUT LOW signal is at logic 0 by being held in the reset mode.

The output from the monostable N.7 drives the output transistor T.2 via R.5. C.9 is included to slow down any inductive spikes that may be generated by the external equipment. MR.3 is used as reverse voltage protection.

PIN CONNECTIONS

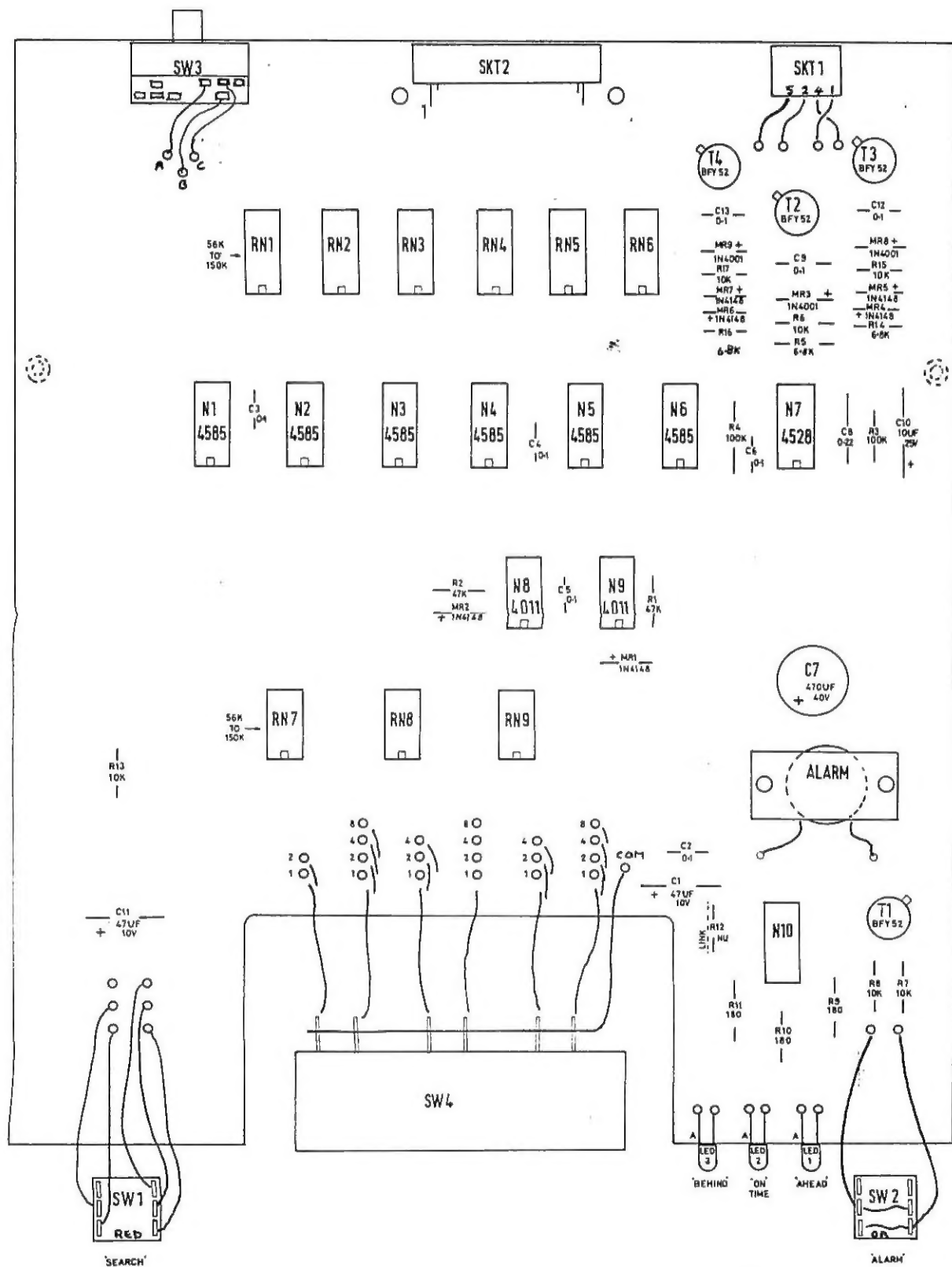
Mating Connector : 25 way CANNON PLUG

<u>Pin No.</u>	<u>Function</u>
1	8)
2	4)
3	2) Seconds
4	1)
5	4)
6	2) 10's Seconds
7	1)
8	8)
9	4)
10	2) Minutes
11	1)
12	0V
13	
14	4)
15	2) 10's Minutes
16	1)
17	8)
18	4)
19	2) Hours
20	1)
21	2)
22	1) 10's Hours
23	Signal Low Input (Logic 0)
24	+5V Power Input
25	

OUTPUT PIN CONNECTIONS

Mating Connector : 3 pin or 5 pin 180° DIN Plug

<u>Pin No.</u>	<u>Function</u>
1	Output (Open Collector, Pulse to 0V)
2	0V
3	
4	
5	



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TAPE SEARCH 204

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